



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/724,852

12/01/2003

Patricia Ann Piers

AMOI0010U-US

2156

31518 7590 04/30/2009
NEIFELD IP LAW, PC
4813-B EISENHOWER AVENUE
ALEXANDRIA, VA 22304

EXAMINER

MATTHEWS, WILLIAM H

ART UNIT

PAPER NUMBER

3774

NOTIFICATION DATE

DELIVERY MODE

04/30/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

general@neifeld.com
rneifeld@neifeld.com
rhahl@neifeld.com

Office Action Summary	Application No. 10/724,852	Applicant(s) PIERS ET AL.	
	Examiner William H. Matthews (Howie)	Art Unit 3774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 216,219-233,236,238-244,246,249-255,257-263,265,266,269,270 and 273-277 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continuation of Disposition of Claims: Claims pending in the application are 216,219-233,236,238-244,246,249-255,257-263,265,266,269,270 and 273-277.

Response to Arguments

1. Applicant's arguments with respect to claims 216,219-233,236,238-244,246,249-255,257-263, 265-266,269-270,273-277 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 216,219,220,222,225-228,233,236,238-244,246,250,253-255,257-263,265,266,269, 270, and 273-277 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosoburd et al (US 5,760,871) in view of Piers US20040156014.

4. Kosoburd discloses a multifocal intraocular lens comprising diffractive and aspheric portions (see col. 6 lines 20-37, columns 15-16, and figures 4B-4C). The diffractive and aspheric portions may be on the posterior and/or anterior surface. As the portions may be on opposing sides and of equal distribution, the distribution of light would be 50:50 between the two. The limitations regarding the Zernike polynomials and the lens being characterized by conical equations appear inherently met because the Zernike polynomials describe spherical aberrations which are reduced and figure 4C show a partially conical shape which may be described by such equations.

Art Unit: 3774

5. Kosoburd fail to expressly disclose the lens comprising a negative spherical aberration to balance a positive spherical aberration produced by a cornea. Piers teach in paragraph 0008 that corneal spherical aberrations of adults are positive, and further teach reducing such aberrations by means of designing a lens according to mathematical models including terms of a conicoid or rotation, polynomials, or combinations thereof (para 0017).

Table 1 show an 11th term of the 4th order relates to spherical aberration.

6. Thus it would have been obvious to one of ordinary skill in the art to modify the aspheric surface of Kosoburd to include a negative spherical aberration to compensate, eliminate, or reduce the naturally occurring positive spherical aberration created by the cornea, and to design the lens according to known mathematical models including conoid terms or polynomials representative of spherical aberration as taught by Piers. The motivation to combine being that using a mathematical model can more accurately correct or reduce aberrations.

7. Claims 216,219,220-225, 227-230, 233, 236,238-244, 246,249-253,257,259-263,265,266,269, 270 and 273-277 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (US 5,800,532) in view of Piers US PUB20040156014.

8. With reference to Figure 7A Lieberman discloses a multifocal intraocular lens 34 comprising a first surface 58 and a second surface 50 wherein the first surface has a first shape and the second surface has a second shape. Furthermore, Lieberman discloses that the IOL (34) can be a toric (aspherical) shape (col. 8, lines 49-67) wherein portion 42 comprises a diffractive pattern (col. 8, lines 45-48) and provides an additional focus to the base focus of the lens (col. 7, lines 18-24) wherein the base focus is 18 diopters (col. 7, lines 50-53) and the additional

Art Unit: 3774

focus may exceed the base focus by 3 or more diopters (col. 7 lines 45-50). Furthermore, Lieberman discloses an additional focus area which can be greater than 90 degrees, which would occupy more than 30% of the light distribution (col. 7, lines 35-46).

9. Lieberman fail to expressly disclose the aspheric shape comprising a negative spherical aberration although Lieberman do disclose at col. 8 line 49 to col. 9 line 21 that the aberrations are intended to be reduced.

10. Piers teach in paragraph 0008 that corneal spherical aberrations of adults are positive, and further teach reducing such aberrations by means of designing a lens according to mathematical models including terms of a conicoid or rotation, polynomials, or combinations thereof (para 0017). Table 1 show an 11th term of the 4th order relates to spherical aberration.

11. Thus it would have been obvious to one of ordinary skill in the art to modify the aspheric surface of Lieberman to include a negative spherical aberration to compensate, eliminate, or reduce the naturally occurring positive spherical aberration created by the cornea, and to design the lens according to known mathematical models including conoid terms or polynomials representative of spherical aberration, as taught by Piers. The motivation to combine being that using a mathematical model can more accurately correct or reduce aberrations.

12. Claims 231 and 232 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (US 5,800,532) in view of Piers US PUB 20020122153.

13. Lieberman in view of Piers teaches an IOL as provided *supra* however Lieberman does not provide the exact thickness of 1.1 millimeters or first and second surfaces comprising radii of curvature between 12 and 13 millimeters. However, Lieberman does disclose “the

Art Unit: 3774

relative power and extent (e.g. diameter) of the body portion 52 is chosen based on individual patient considerations, as well known in the art"(col. 6, lines 61-64). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a thickness of 1.1 millimeters and a first and second surfaces comprising radii of curvature between 12 and 13 millimeters when required by patient needs. The rationale for making the combination being that it would be obvious to try the claimed dimensions within the IOL of Lieberman, as modified by Piers, because the dimensions are compatible with use within a human eye.

14. Claims 221,223-224, 229-232,249, and 251-252 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kosoburd et al.(US 5,760,871) in view of Piers US PUB 20020122153.

15. Kosoburd, as modified by Piers, teaches an IOL as provided *supra* however Kosoburd does not provide the exact dimensions, materials, or powers. However, Kosoburd does disclose the lens to be designed based on individual patient considerations. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the specific materials, dimensions, and powers as claimed because these would be well-known design considerations in the art of ophthalmology. The rationale for making the modifications being that it would be obvious to try the claimed dimensions within the IOL of Kosoburd, as modified by Piers, because the dimensions are compatible with use within a human eye.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Matthews (Howie) whose telephone number is 571-272-4753. The examiner can normally be reached on Monday-Friday 10-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Isabella can be reached on 571-272-4749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Matthews/
Primary Examiner
Art Unit 3774